justice national summit of grassroots groups held in Washington, D.C. 1992 35,000 people from 178 countries attend to nonsmokers. EPA implements strategy governing hazardous waste incinerators and industrial furnaces. Curbside

HEALTHY ECOSYSTEMS

The Dynamic Interaction of Habitat and People

An ecosystem is the interrelationship of all living and non-living things in an environment such as a lake, forest, or a geographic region. Often, we think of a home terrarium as a man-made ecosystem, but ecosystems can also be as large as our solar system.

In the Central-South region, a major ecosystem is the Gulf of Mexico. The diversity of the Gulf, from the clear waters of the Laguna Madre in Texas to the mangrove swamps of south Florida, contributes to cultural traditions that characterize this vast sea.

Since its discovery by Spain 500 years ago, the Gulf of Mexico has become a wellspring of commerce and transportation, as well as an area of strategic military importance. Today, human actions and pollution are threatening the health and well-being of the Gulf. However, it is sometimes difficult for people to understand how our day-to-day actions can harm the Gulf.

At risk in the Gulf are billions of dollars in infrastructure, homes, schools, roads, ports, businesses and industries. Moreover, coastal marshes are essential to various lifestages of over 90 percent of marine species that people depend on for their livelihoods and recreation. Marsh loss threatens the productivity of Gulf fisheries.

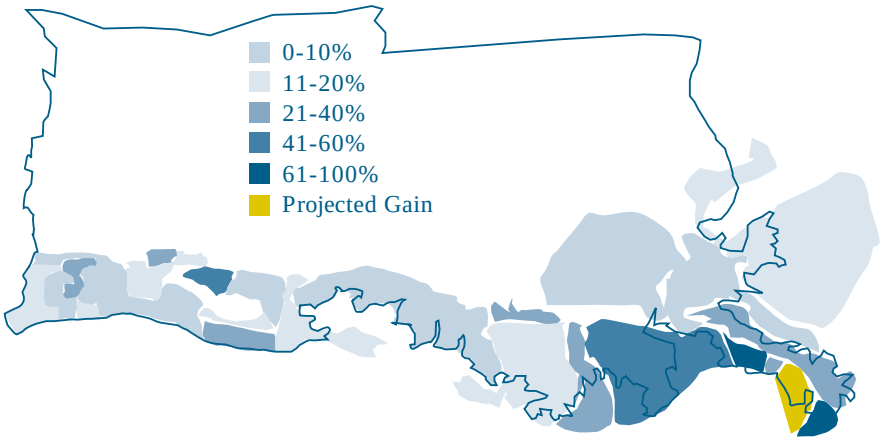
Since 1991, EPA's Central-South region has worked with the Louisiana Department of Natural Resources to restore the more than 500 miles of barrier islands that help protect the Louisiana and Texas shorelines against tropical storms and hurricanes. Today, almost 10 miles of the Isles Dernieres chain shoreline have been restored. Without restoration, these islands could disappear by 2020. Island restoration resulted from public and private partnership.

The Gulf of Mexico Program

The Gulf of Mexico Program — founded on the principles of partnership, science-based information, and citizen involvement — includes representatives from federal and Gulf state agencies, business, industry, the environmental community, and academia.

the United Nations Earth Summit in Rio de Janeiro. 1993 EPA reports secondhand smoke poses a serious health risk recycling triples from 7% in 1970 to nearly 22% in 1993. 1994 The American bald eagle is upgraded from an

Louisiana Projected Wetlands Loss 2050



Louisiana includes 40 percent of all coastal wetlands in the United States, and each year more wetlands are lost in Louisiana than exist in the rest of the nation.

Over the past 10 years, the program has completed several demonstration projects that offer solutions to the most difficult environmental issues facing coastal waters. However, progress is not keeping up with growth. The Gulf of Mexico is the nation's second-fastest-growing population on a coastline. The underlying stresses of population, coastal development, and energy production and transportation growth have prevented real environmental and public health gains.

Ecological problems confronting the Gulf are complex and enormous on a geographic scale. Solutions to these problems must be found before they lead to systemic crises. Some solutions will require international cooperation with Mexico, Central America and the Caribbean.

Challenges

While coastal wetland loss in Louisiana is caused in part by subsidence — a natural process in the Louisiana delta — human activity has accelerated this loss. Following the disastrous 1927 flood, levees were built along the Mississippi River, stretching from upland areas all the way to the Gulf. These levees cut off the river from its natural floodplain, reducing the essential flow of nutrients and sediments needed to replenish the marshes.

This has been further accentuated by channeling of the coastal marshes to allow for oil and gas exploration and production, and improved transportation. The dissection of the coastal marshes, considered essential to energy development of the day, caused physical destruction and allowed the introduction of saltwater into previously freshwater marsh areas, hastening their demise.

An unprecedented "red tide" occurred in the Gulf during the fall of 1996, impacting beaches and shellfish waters from Florida to Texas. In the past, red tides were confined to the western and northwestern Florida continental shelf, the east coast of Texas, and the Bay of Campeche, Mexico. The red tide caused large-scale fish kills, loss of invertebrates, and loss of endangered Florida manatees. In addition, as these blooms approached shore, the toxic by-products of the bloom organisms contaminated shellfish. In some areas, wave action generated toxic aerosols, causing respiratory problems, eye irritation, and allergic reactions for beachgoers.

Progress

In Louisiana, restoring four priority oyster beds in the Barataria-Terrebonne Bay Watershed will increase the Gulf shellfish beds available for safe harvest by 10 percent.

endangered to threatened species. President Clinton orders government agencies to make environmental justice part program's first decade. Brownfields program launched, with grants to communities to revitalize abandoned,

The Gulf of Mexico Program Focuses on These Challenges:

- **Public Health**
- **Excessive nutrient enrichment**
- **Habitat loss and degradation**
- **Nonindigenous species introductions**

The region has a Baton Rouge office that specifically works with Louisiana, local governments, and communities to restore and protect wetland resources. Today, over $20 million has been provided by EPA to restore 1,300 acres of wetlands. Also, hundreds of abandoned barges in south Louisiana threatened the bayous, rivers and marshes with releases of oil and hazardous materials. The region has joined with the U.S. Coast Guard and the state to remove the most threatening barges.

Since 1990, the Texas Parks and Wildlife Department has teamed up with the Gulf of Mexico Program to identify sites for habitat protection called Gulf of Mexico Ecological Management Sites. They receive additional management attention to protect key coastal and offshore areas of ecological significance.

EPA responds to ecosystem problems of the northwestern Gulf of Mexico in a number of ways: through funding states' programs, especially those under the Clean Water Act; through activities under the Coastal Wetland Planning Protection and Restoration Act; and through support for the Gulf of Mexico Program, the Lake Pontchartrain Basin Foundation and the Barataria-Terrebonne National Estuary Program, Galveston Bay Estuary Program, and Coastal Bend Bays and Estuaries Program.

Maintaining these ecosystems requires financial and technical investments. To restore the marine and estuarine ecosystems of the northwestern Gulf of Mexico, difficult policy choices and large new financial and human resource investments are needed.

Mississippi River Tributaries and Basin

Human actions and pollution have contributed to a large area of oxygen-depleted water off the mouth of the Mississippi River that cannot support the normal marine life.

of their mission. Superfund cleanups accelerated, resulting in as many cleanups in 12 months as were completed in contaminated inner-city sites and return them to productive use. List of toxic chemicals reported to public under